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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/759,154	01/16/2001	Hirochika Ueyama	P66321US0	2837

7590

10/09/2002

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EXAMINER

LE, DANG D

ART UNIT

PAPER NUMBER

2834

DATE MAILED: 10/09/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/759,154

Applicant(s)

UEYAMA ET AL.

Examiner

Dang D Le

Art Unit

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 August 2002.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1 and 2 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 2 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                             | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other:  |

## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments filed 8/27/02 have been fully considered but they are not persuasive. The applicant's argument is on the ground that the "micro-computer (45, Figure 6) does not control the electromagnet in the magnetic bearing". It is noted that the micro-computer 45 does control the electromagnet in the magnetic bearing by having a constant current always flow in the normal direction electromagnets 5b, 6b and 5d, 6d. See column 4, lines 1-15. Electromagnets 5a-5d and 6a-6d are components electromagnet bearings 5 and 6, respectively. In addition, although "the intermediate position C between A and B" of Kawashima "is not a mechanical central position but a magnetic central position", claims 1 and 2 neither clearly recite the intermediate position being a mechanical central position. Claim 1 even recites the limit positions determined by the mechanical restraining means.

Therefore, the rejection is still deemed proper and repeated herein.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ando et al. in view of Kawashima.

Regarding claim 1, Ando et al. show a magnetic bearing device (Figure 1) for magnetically levitating a rotary body (3) by contactlessly supporting the body with magnetic attraction of pairs of electromagnets (5, 6) with respect to an axial direction and two radial directions (Figure 2, 5a-5d) orthogonal to each other and to the axial direction, the rotary body having movable ranges (gap around shaft 3) in the three supporting directions determined by mechanical restraining means (18, 19), the magnetic bearing device comprising:

- A pair of electromagnets (5, 6) arranged to hold the rotary body at opposite sides thereof in the direction of each of control axes in the respective three supporting directions (Figures 1 and 2),
- Means (14, 15, 16) for detecting the position of the rotary body in the direction of the control axis and electromagnet control means (20, Figure 2) having at least an integral operation unit for controlling the electromagnets based on

the result of detection of the position by the position detecting means, the electromagnet control means (20) comprising:

- A target levitated position setting means (45, Figure 6) for setting as a target levitated position (reference position, Figure 4) of the rotary body in the direction of the control axis.

Ando et al. do not show the target levitated position setting means for setting the position of the rotary body corresponding to a median of an integral output which is the output of the integral operation unit when the rotary body is magnetically levitated in a vicinity of one of limit positions in the direction of the control axis determined by the mechanical restraining means and the integral output of the integral operation unit when the rotary body is magnetically levitated in a vicinity of the other limit position.

Kawashima shows the target levitated position setting means (b, Figure 1) for setting the position of the rotary body corresponding to the median ( $C = (A+B)/2$ ) of an integral output which is the output of the integral operation unit when the rotary body is magnetically levitated in the vicinity of one of limit positions in the direction of the control axis determined by the mechanical restraining means (left or right magnets) and an integral output of the integral operation unit when the rotary body is magnetically levitated in the vicinity of the other limit position (Figure 2) for the purpose of centering the position of the rotor.

Since Ando et al. and Kawashima are all from the same field of endeavor; the purpose disclosed by one inventor would have been recognized in the pertinent art of the others.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to make the position of the rotary body corresponding to the median of an integral output which is the output of the integral operation unit when the rotary body is magnetically levitated in the vicinity of one of limit positions in the direction of the control axis determined by the mechanical restraining means and an integral output of the integral operation unit when the rotary body is magnetically levitated in the vicinity of the other limit position as taught by Kawashima for the purpose discussed above.

Regarding claim 2, it is noted that Kawashima also shows the target position setting means being adapted to position the rotary body at said one limit position (steps 100, 102), thereafter magnetically levitate the rotary body in the vicinity thereof, obtain the integral output at this time (step 104) to store the output as a first limit position integral output in a memory, gradually shift the magnetically levitated position of the rotary body toward said other limit position (step 106), determine the position of the rotary body every time the rotary body is so shifted by a small distance (step 108) at a time and a corresponding integral output for storage as an intermediate position and an intermediate position integral output in the memory, move the rotary body to said other limit position (step 106), thereafter magnetically levitate the rotary body in the vicinity thereof, obtain the integral output at this time for use as a second limit position integral output, determine a median (step 112) of the first limit position integral output and the second limit position integral output, and select the output most proximate to a median from among the intermediate position integral outputs stored in the memory to

determine the intermediate position corresponding to the selected intermediate position integral output as the target levitated position (Figure 2).

***Conclusion***

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

***Information on How to Contact USPTO***

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dang D Le whose telephone number is (703) 305-0156. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on (703) 308-1371. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

DDL  
October 7, 2002

DL

Lang DL